

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Frolund et al.

Confirmation No.:

Application No.:

Examiner:

Filing Date:

Group Art Unit:

Title: METHODS OF READING AND WRITING DATA

COMMISSIONER FOR PATENTS  
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

- ☒ under 37 CFR 1.97(b), or  
(Within three months of filing national application; or date of entry of national application; or before mailing date of first office action on the merits; whichever occurs last)
- ☐ under 37 CFR 1.97(c) together with either a:  
☐ Statement under 37 CFR 1.97(e), or  
☐ a \$180.00 fee under 37 CFR 1.17(p), or  
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)
- ☐ under 37 CFR 1.97 (d) together with a:  
☐ Statement under 37 CFR 1.97(e)(1) or (2), and  
☐ a \$180.00 fee set forth in 37 CFR 1.17(p).  
(Filed after final action, a notice of allowance, on or before payment of the issue fee)

Please charge to Deposit Account **08-2025** the sum of \$0.00. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account **08-2025** pursuant to 37 CFR 1.25.

☒ Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Citation together with copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

☐ A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individual(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

"Express Mail" label no. **EU872540174US**

Date of Deposit **10/23/2003**

I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By 

Typed Name: **Daniel Ratoff**

Respectfully submitted,

**Frolund et al.**

By 

**Derek J. Westberg**

Attorney/Agent for Applicant(s)

Reg. No. **40,872**

Date: **10/23/2003**

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200311958-1

APPLICATION NO.

CONFIRMATION NO.

APPLICANT

Frolund et al.

FILING DATE

GROUP

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	1A	10/440,531		Veitch et al.	
	1B	10/440,548		Frolund et al.	
	1C	10/440,570		Merchant et al.	
	1D				
	1E				
	1F				
	1G				
	1H				
	1I				
	1J				
	1K				

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	1L					
	1M					
	1N					
	1O					
	1P					

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	1Q	K. Amiri and G. A. Gibson and R. A. Golding, Highly concurrent shared storage, The 20th International Conference on Distributed Computing Systems (ICDCS 2000), April 10-13, 2000, Taipei, Taiwan, pp. 298-307, IEEE Computer Society, Los Alamitos, CA, 2000.
	1R	H. Attiya, A. Bar-Noy, and D. Dolev, Sharing memory robustly in message-passing systems, Journal of the ACM, Volume 42, Issue 1, January, 1995, pp. 124-142, ACM Press, New York, NY, 1995.
	1S	P. Dutta, S. Frolund, R. Guerraoui, and B. Pochon, An efficient universal construction for message-passing systems, EPFL Technical Report IC-TR-2000228, May 2002.

EXAMINER

DATE CONSIDERED

<b>FORM PTO-1449</b>  <b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b>  (Use several sheets if necessary)	ATTY. DOCKET NO.	APPLICATION NO.	CONFIRMATION NO.
	<b>200311958-1</b>		
	APPLICANT		
	<b>Fr lund et al.</b>		
	FILING DATE	GROUP	

### REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	2A				
	2B				
	2C				
	2D				
	2E				
	2F				
	2G				
	2H				
	2I				
	2J				
	2K				

### FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	2L					
	2M					
	2N					
	2O					
	2P					

### OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

2Q	S. Frolund, A. Merchant, Y. Saito, S. Spence, and A. Veitch, FAB: Enterprise storage systems on a shoestring, Proceedings of HOTOS IX: The Ninth Workshop on Hot topics in Operating Systems, Lihue, Hawaii, May 18-21, 2003, pp. 169-174, The USENIX Association, Berkeley, CA, 2003.
2R	G. R. Goodson, J. J. Wylie, G. R. Ganger, and M. K. Reiter, Decentralized storage consistency via versioning servers, Technical Report CMU-CS-02-180, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA, September, 2002.
2S	J. Kubiawicz, D. Bindel, Y. Chen, S. Czerwinski, P. Eaton, D. Geels, R. Gummadi, S. Rhea, H. Weatherspoon, W. Weimer, C. Wells, and B. Zhao, Oceanstore: An architecture for global-scale persistent storage, Proceedings of the Ninth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-IX), Cambridge, MA, pp. 190-201, ACM Press, New York, NY, November, 2000.

EXAMINER

DATE CONSIDERED

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200311958-1

APPLICATION NO.

CONFIRMATION NO.

APPLICANT

Fr lund et al.

FILING DATE

GROUP

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	3A				
	3B				
	3C				
	3D				
	3E				
	3F				
	3G				
	3H				
	3I				
	3J				
	3K				

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	3L					
	3M					
	3N					
	3O					
	3P					

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

3Q	L. Lamport, On interprocess communication, Dec. 25, 1985.
3R	E. K. Lee and C. A. Thekkath, Petal: Distributed virtual disks, Proceedings of the Seventh International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-VII), Cambridge, MA, pp. 84-92, ACM Press, New York, NY, 1996.
3S	N. A. Lynch and A. A. Shvartsman, Robust emulation of shared memory using dynamic quorum acknowledged broadcasts, Dec. 2, 1996..

EXAMINER

DATE CONSIDERED

<b>FORM PTO-1449</b>  <b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b>  (Use several sheets if necessary)	ATTY. DOCKET NO.	APPLICATION NO.	CONFIRMATION NO.
	200311958-1		
	APPLICANT		
	Fr lund et al.		
	FILING DATE	GROUP	

### REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	4A				
	4B				
	4C				
	4D				
	4E				
	4F				
	4G				
	4H				
	4I				
	4J				
	4K				

### FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	4L					
	4M					
	4N					
	4O					
	4P					

### OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

4Q	N. A. Lynch and A. A. Shvartsman, Rambo: A reconfigurable atomic memory service for dynamic networks, Distributed Computing: 16th International Conference, DISC 2002, Toulouse, France, October 28-30, 2002, Proceedings, pp. 173-190, Springer-Verlag Heidelberg, Heidelberg, Germany, 2002.
4R	D. Malkhi and M. Reiter. Byzantine quorum systems, October 16, 1998.
4S	J. S. Plank, A tutorial on Reed-Solomon coding for fault-tolerance in RAID-like systems, Software: Practice and Experience, September, 1997, Volume 27, Issue 9, pp. 995-1012, John Wiley & Sons, Limited, Hoboken, NJ, 1997.

EXAMINER

DATE CONSIDERED

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR  
APPLICANT'S INFORMATION DISCLOSURE  
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200311958-1

APPLICATION NO.

CONFIRMATION NO.

APPLICANT

Frolund et al.

FILING DATE

GROUP

## REFERENCE DESIGNATION

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	5A				
	5B				
	5C				
	5D				
	5E				
	5F				
	5G				
	5H				
	5I				
	5J				
	5K				

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	5L					
	5M					
	5N					
	5O					
	5P					

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	5Q	H. Weatherspoon and J. Kubiawicz, Erasure coding vs.replication: A quantitative comparison, Proceedings for the 1st International Workshop on Peer-to-Peer Systems (IPTPS '02), March 2002.
	5R	
	5S	

EXAMINER

DATE CONSIDERED